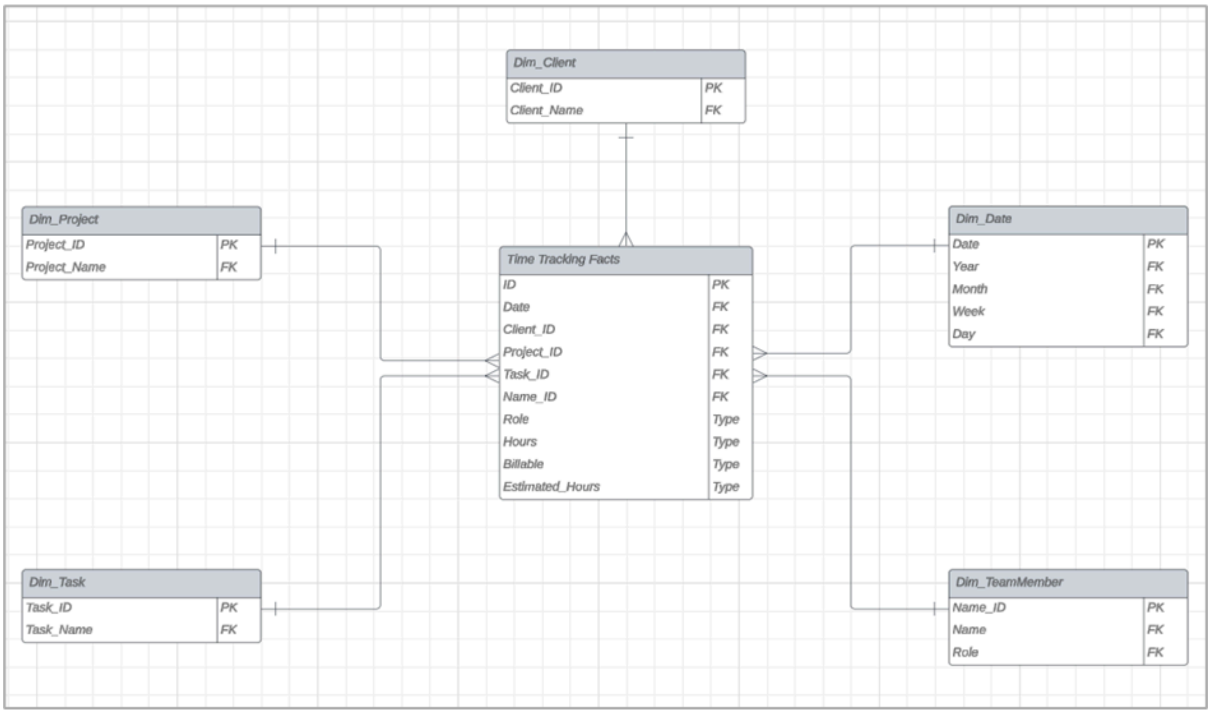
Understanding the Data

Datasets Overview

1. **Float Data**
   - **Purpose**: Tracks staffing and allocation information for projects.
   - **Attributes**: Client, Project, Role, Name, Task, Start Date, End Date, Estimated Hours.
2. **ClickUp Data**
   - **Purpose**: Tracks task and time logs.
   - **Attributes**: Client, Project, Name, Task, Date, Hours, Note, Billable.

Dimensional Model (For Analytical Purposes)

Model: Star Schema



Fact Table: Time Tracking Facts

- **Grain**: One row per task logged.
- **Columns**:
   - `Date` (foreign key to `Dim_Date`)
   - `Client_ID` (foreign key to `Dim_Client`)
   - `Project_ID` (foreign key to `Dim_Project`)

  - `Task_ID` (foreign key to `Dim_Task`)
  - `Name_ID` (foreign key to `Dim_TeamMember`)
  - `Role` (from Float data)
  - `Hours` (from ClickUp data)
  - `Billable` (Yes/No from ClickUp data)
  - `Estimated_Hours` (from Float data)

Dimension Tables:

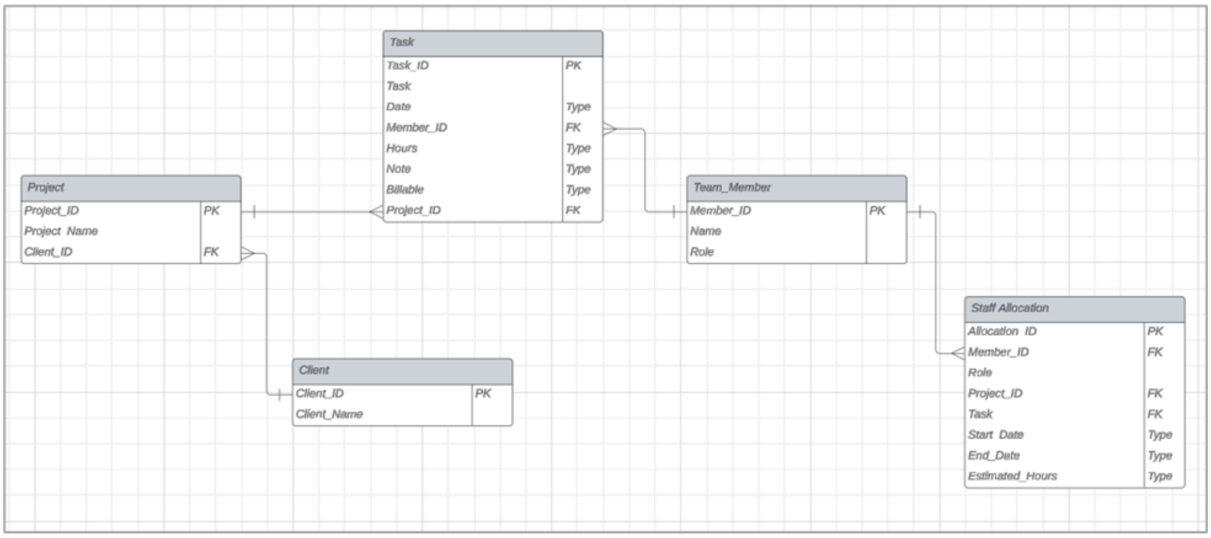
1. **Dim_Date**
   - Date, Year, Month, Week, Day.
2. **Dim_Client**
   - Client_ID, Client Name.
3. **Dim_Project**
   - Project_ID, Project Name.
4. **Dim_Task**
   - Task_ID, Task Name.
5. **Dim_TeamMember**
   - Name_ID, Name, Role.

Design Explanation

1. **Purpose**: Analytical queries (e.g., total hours logged, billable hours by client/project).
2. **Advantages**:
   - Optimized for aggregations (e.g., SUM, COUNT).
   - Simplifies complex queries with pre-joined dimensions.
   - Scales well with increasing data.

Entity-Relationship Model (For Operational Purposes)

Model: Normalized ER Model



Entities:

1. **Team Member**:
   - Attributes: Name (Primary Key), Role.
2. **Project**:
   - Attributes: Project ID (Primary Key), Project Name, Client ID (Foreign Key).
3. **Client**:
   - Attributes: Client ID (Primary Key), Client Name.
4. **Task Log**:
   - Attributes: Log ID (Primary Key), Date, Name (Foreign Key), Task, Hours, Note, Billable.
5. **Staff Allocation**:
   - Attributes: Allocation ID (Primary Key), Name (Foreign Key), Role, Project ID (Foreign Key), Task, Start Date, End Date, Estimated Hours.

Relationships:

- **Team Member** ↔ **Task Log**: One-to-Many (Each team member can have multiple task logs).
- **Client** ↔ **Project**: One-to-Many (Each client can have multiple projects).
- **Project** ↔ **Task Log**: One-to-Many (Each project can have multiple task logs).
- **Team Member** ↔ **Staff Allocation**: One-to-Many (Each member can be allocated to multiple roles/projects).

Design Explanation

1. **Purpose**: Supports operational needs (e.g., creating new task logs, updating allocations).

2. **Advantages**:
    - Eliminates data redundancy.
    - Ensures data integrity through normalized relations.
    - Designed for transactional operations (INSERT, UPDATE).